

Amendment to the Claims:

The listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1)-2) Cancelled without disclaimer or prejudice.

3) (Currently Amended) A method as claimed in claim-~~27~~, characterized in that heating means associated with pipe ~~(4)~~ are used to raise the temperature of the petroleum fluids above the dissociation temperature.

A. 4) (Currently Amended) A method as claimed in claim-~~38~~, characterized in that, pipe ~~(4)~~ being included with at least a second pipe ~~(2, 3)~~ in a tube ~~(T)~~ isolated from the outside medium, second pipe ~~(2, 3)~~ is used for circulation of a warm fluid.

5) (Currently Amended) A method as claimed in claim-~~27~~, characterized in that hydrate inhibitors are injected into pipe ~~(4)~~ under the control of control device ~~(G)~~.

A2
C³A

6) (New) A method for continuous detection, at any point of a pipe carrying a multiphase mixture of petroleum fluids, using a mechanistic hydrodynamic module and an integrated compositional thermodynamic module to define the phase properties, and applying mass conservation and momentum conservation equations, as well as equations of energy transfer in the mixture, considering that the multiphase mixture is substantially continuously at equilibrium, a composition of the multiphase mixture is variable all along the pipe and a mass of each constituent of the mixture is globally defined by a mass conservation equation regardless of phase state thereof, and the petroleum fluids are lumped together into a limited number of pseudo-components, comprising detecting thermodynamic hydrate formation conditions by :

carrying out a lumping of the petroleum fluids into selected pseudo-components so as to isolate the hydrate forming components, with a definition for each pseudo-component of a mass fraction and of a number of characteristic physical quantities, and

applying to said modules data relative to the selected pseudo-components so as to determine at any point the hydrate dissociation temperature.

7) (New) A method for continuous control of hydrate formation at any point of a pipe carrying a multiphase mixture of petroleum fluids, using a mechanistic hydrodynamic module and an integrated compositional thermodynamic module to define the phase properties, and applying mass conservation and momentum conservation equations, as well as equations of energy transfer in the mixture,

considering that the multiphase mixture is substantially continuously at equilibrium, a composition of the multiphase mixture is variable all along the pipe and a mass of each constituent of the multiphase mixture is globally defined by a mass conservation equation regardless of its phase state thereof, and the petroleum fluids are lumped together into a limited number of pseudo-components, comprising:

a) detecting hydrate formation conditions by :

*As
Control*

carrying out a lumping of the petroleum fluids into selected pseudo-components so as to isolate the hydrate forming components, with a definition for each pseudo-component of a mass fraction and of a number of characteristic physical quantities, and

by applying to said modules data relative to these particular pseudo-components so as to determine the hydrate dissociation temperature;

b) a control device to compare temperature of the petroleum fluids with this dissociation temperature; and

c) applying measures intended to fight hydrate formation under the control device.